

Applic. No.: 10/022,610
Amdt. Dated August 23, 2005
Reply to Office action of May 23, 2005

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1 and 3-12 remain in the application. Claims 1, 3, and 12 have been amended. Claim 2 has been cancelled.

In item 1 on page 2 of the above-identified Office action, claims 2 and 3 have been objected to because of informalities. More specifically, the Examiner has stated that claims 2 and 3 appear to be identical claims. Claim 2 has been cancelled.

In item 4 on pages 2-4 of the above-mentioned Office action, claims 1-5, and 10-11 have been rejected as being unpatentable over Alexander, Jr. et al. (US 5,946,311 - hereinafter "Alexander") in view of Callon (US 5,430,727) under 35 U.S.C. § 103(a).

In item 5 on page 4 of the above-mentioned Office action, claims 6-9 have been rejected as being unpatentable over Alexander in view of Callon and further in view of Mendelson et al. (US 6,343,083 - hereinafter "Mendelson") under 35 U.S.C. § 103(a).

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In item 6 on pages 5-6 of the above-mentioned Office action, claims 12-17 have been rejected as being unpatentable over Alexander in view of Mendelson under 35 U.S.C. § 103(a).

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references. However, the language of claims 1 and 12 has been modified in an effort to even more clearly define the invention of the instant application.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

transmitting the hardware address and the data from the first router device to the network gateway unit;

checking, with the network gateway unit, whether or not the transmitted hardware address matches a hardware address stored in a memory of the network gateway unit and, in the event of a positive check result:

allocating a network address to the data with the network gateway unit, the network address being allocated to the transmitted hardware address in the network gateway unit and identifying an exit point of the communications network;

forwarding the network address and the data from the network gateway unit into the communications network after conversion according to a transmission protocol used in the communications network; and

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transmitting the data from the communications network to the exit point defined by the network address, the exit point being where the data is fed to the second router device.

Claim 12 calls for, inter alia:

an allocation table for storing hardware addresses each respectively allocated to a network address and identifying an exit point of the communications network to a relevant one of the router devices, the first router device using the hardware addresses to identify another one of the router devices;

an address-checking device determining if a hardware address arriving from the first router device matches one of the hardware addresses in said allocation table, said address-checking device connected to said allocation table;

an address allocation device allocating data arriving from the first router device, the data being allocated to a respective one of the hardware addresses, to a network address allocated to the respective one of the hardware addresses in said allocation table, said address allocation device connected to said allocation table; and

a protocol conversion device converting and transmitting the data arriving from the first router device according to the transmission protocol, the network address allocated to the data being used as address information, said protocol conversion device connected to said address-checking device and to said address allocation device.

Claim 1 of the instant application differs from the cited references in the following aspects:

- The network gateway unit and its behavior in the context of the inventive method of the instant application. Since the network gateway unit is the

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central element of the invention of the instant application, it is doubtful whether a person skilled in the art would have considered Alexander at all because Alexander does not disclose any device which has the functionality or performs all the method steps of the network gateway unit according to claim 1 of the instant application.

According to claim 1 of the instant application, the network gateway unit is located and acts between the first router device and the communications network. In contrast, the routers disclosed by Alexander are directly connected to the ATM network. In the system of Alexander there is neither need nor motivation to insert an additional network gateway unit between the routers and the ATM network.

- Transmitting the hardware address (identifying the downstream router) and the data, to which that hardware address is allocated, to the network gateway unit.

In the prior art, a hardware address usually identifies only the immediately next (transit) network device lying on the data path. This next network device normally replaces the hardware address allocated to the data with

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the hardware address of the next network device lying on the data path. In contrast to the hardware address, a network address identifies a data destination, which may be reached via several transit network devices. A network device usually determines a respective next network device and its hardware address by means of such a network address.

However, according to claim 1 of the instant application and in contrast to the prior art, the next network device on the data path after the first router is not the second router identified by the hardware address, but rather the network gateway unit between the first router and the network. In other words, the data are provided by the first router with a hardware address, which identifies the second router, but are first transmitted to a different device, namely the network gateway unit. According to the invention of the instant application, the network gateway unit is adapted to handle this unusual use of a hardware address identifying a different device. In contrast to claim 1 of the instant application, there is no indication, either in Alexander or in Callon, that a first router allocates a hardware address of a downstream router (to be reached over the network) to data, which are first

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transmitted to a network gateway unit between the first router and the network.

- Checking with the network gateway unit whether or not the transmitted hardware address (identifying the second router) matches a hardware address stored in the network gateway unit. Neither Alexander nor Callon shows any indication that a network gateway (or a router) checks a hardware address identifying a device different from that network gateway (or router). Usually network devices only check for their own hardware address.
- Allocating with the network gateway unit, in the event of a positive check result, to the data a network address being allocated to the transmitted hardware address in the network gateway and identifying an exit point of the network. Neither Alexander nor Callon shows any indication that a network gateway or a router allocates to the data a network address which is allocated (in that gateway or router) to a received hardware address identifying another network gateway or router, respectively.

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In particular, one crucial feature of the invention of the instant application, which makes the above mentioned features different from the features of Alexander (and Callon), is that the first router uses the hardware address of the second router for transmission, though this second router lies outside (behind the exit point) of the network and cannot be reached directly. The network gateway unit is provided in order to handle the unusual use of the hardware address and to add a network address (derived from this hardware address), which allows transporting the data over the network to the exit point.

The above-mentioned feature combination of claim 1 of the instant application is advantageous over the prior art because it allows a transparent use of hardware addresses across network boundaries. In this way virtual local area networks can be realized. In contrast, the implementations of Alexander and Callon do not allow using hardware addresses across network boundaries.

Neither Alexander nor Callon provides any hint, which can motivate a person skilled in the art to perform all the above mentioned method steps within the same network gateway unit located between the ATM routers and the ATM network of Alexander. Since the routers of Alexander are clearly

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targeted to connect to an ATM network (see e.g. ATM network node interfaces 130, 210 and 319), there is no motivation for an artificial insertion of an additional network gateway unit between these routers and the ATM network. For the same reason there is no need or motivation for an additional protocol conversion between the ATM routers and the ATM network of Alexander. Hence, the combination of features of Alexander and Callon as given by the Examiner is made with the benefit of hindsight in a pick-and-choose manner.

Since the features of the network gateway unit of claim 12 of the instant application are arranged in analogy to the method steps of claim 1 of the instant application, the above arguments regarding claim 1 can be applied analogously to claim 12. Alexander does not even show a network gateway unit and Mendelson also fails to show a network gateway unit with the features of claim 12 of the instant application.

In particular, the access network controller (reference sign 250) of Mendelson cannot be identified as a network gateway unit as done by the examiner. A network gateway is a device via which the data are transmitted into a network. This data transmission functionality is also important for claim 12 of the instant application where several features are explicitly

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based on it. In contrast, the access network controller of Mendelson only provides addresses for the data to be transmitted but does not transmit these data by itself. Therefore, the access network controller of Mendelson cannot be regarded as a gateway unit.

Moreover, "the uses of allocation tables for storing and mapping among MAC addresses, IP addresses and network addresses" may be known in the art, but the particular and unusual way of storing, mapping and using a hardware address which identifies the second router and not the network gateway unit which deals with this hardware address, cannot be regarded as well known.

Regarding claim 3 of the instant application, Callon does not disclose that the second router device allocates the hardware address (referred to in claim 1) to the data. More specifically, Callon (as well as Alexander) fails to show that the first router, the second router, and the network gateway unit handle the same hardware address.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 and 12. Claims 1 and 12 are, therefore, believed to be patentable over the art and

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since all of the dependent claims are ultimately dependent on claims 1 or 12, they are believed to be patentable as well.

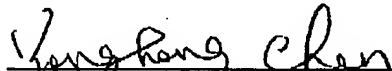
In view of the foregoing, reconsideration and allowance of claims 1 and 3-17 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made. Please charge any fees which might be due with respect to 37 CFR Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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For Applicants

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